Conservation works of Monuments

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DEPARTMENT OF ARCHAEOLOGY

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தமிழ்நாடு அரசு தொல்லியல் துறை நூலகம்
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PREFACE

Tamil Nadu is the eleventh largest state in India and covered with an immense wealth, range and variety of built heritage. Monuments, archaeological sites and all that is built heritage constitute a vital cultural resource embodying knowledge systems, values, traditions- a source of beauty and wonder-what we have today. These also constitute a finite non-renewable, irreplaceable resource. Hence looking after the ancient monuments and keeping them in a proper state of repair is the main duty of every one, so that the message and hand work of our predecessors can pass on to the next generation.

In order to protect the heritage value, the Department of Archaeology was formed in 1961 CE with the **motto "To Conserve , Do not Restore ., Restore where Necessary but Do not Renovate"**. The study of the human past is the subject matter of both Archaeology and History. But history is dependent on written records. Archaeology is the discipline that studies the story of man's past through his material remains.

Archaeology plays a vital role in Tourism Development by giving an authentic history of the place and monument. Tamil Nadu is very famous for large

number of cultural properties with abundant evidence in Literature as well as inscriptions.

They are both secular as well as religious in nature. The conservation of heritage structures which includes restoration and preservation is the main function of this department. Conservation- Archaeology has to adhere to strict UNESCO norms and the Venice Charter with a commitment to preserve the monument in seamless manner by safe guarding its integrity.

As on today, 85 monuments have been declared as protected monuments by the Tamil Nadu State Department of Archaeology under the "Tamil Nadu Ancient and Historical Monuments and Archaeological Sites and Remains Act 1966" (TNACT 25/1966). Apart from the declared monuments, other activities of this department include identification of various treasures through excavations, epigraphy campaign, conservation of manuscripts, and exhibiting them in Museums. Adequate publicity and awareness has been given through organizing exhibition, seminars and other cultural awareness programmes.

Apart from the regular budget allotment, an outlay of Rs. 428.37 Lakhs has been earmarked for the

conservation of protected monuments under Heritage Protection component of XI Finance Commission Grant for the five years period from 2000-01 to 2004-05., thus 25 monuments were benefited. Similarly, a proposal of Rs.780.00 Lakhs has also been sanctioned for the conservation of monuments under Heritage Protection component of XII Finance Commission Grant for the five years period from 2005-06 to 2009-10 and thus 37 Monuments were conserved. The Tamil Nadu Government has issued orders for executing the works through the State Public Works department. The Archaeological conservation/preservation works are not a normal PWD work but are of a specialized nature. Hence necessary Archaeological Prescription on inspection notes and standardized specifications have been issued to the Public Works Department by the Archaeology Department to execute the work.

Thiru. M.G. Chellapillai, a retired Assistant Superintending Archaeological Engineer was appointed as an archaeological Technical Consultant for PWD works by this department to follow the archaeological norms and principles.

I wish to appreciate and thank Er. Raji, B.E., Chief Engineer (B) PWD and Er.C.Munusamy, M.E.,

Chief Engineer (B) PWD, and their team of Engineers. I also wish to acknowledge the assistance rendered by the Engineers and officials of the Department of Archaeology especially Thiru. R.Narayanan Assistant Executive Engineer, Chennai in the preparation of this document. It is hoped that the **REPORT ON CONSERVATION OF MONUMENTS 2007-10** will be of immense help and guidance to all those who are interested in the field.

Chennai (Dr.T.S.Sridhar)
25.03.2010 Principal Secretary & Commissioner

CONSERVATION WORKS TO THE AYYAPATTI SIVAN KOIL AT THARKAKUDI VILLAGE IN MELUR TALUK OF MADURAI DISTRICT.

Based on its Heritage value, Àyyapatti Sivan koil at Tharkakudi Village in Melur Taluk of Madurai District has been declared as a protected monument of the Tamil Nadu State Department of Archaeology vide G.O. Ms No. 114 / Education/ dated 18.01.2003.The inscription of the temple refers to the name of the deity as Thirukotteeswarar but locally called Ayyapatti sivan koil. This temple is a fine example of the late Pandya architecture which belongs to 13th century A.D. Inscriptions of Parakrama Pandya, Kulasekara Pandya & Vira Pandya are found on the walls of this temple and they refer to the administration of the temple and Endowments.

This stone temple faces east side, consisting of Sanctum Sanctorum and Artha Mandapam with later period Ambal Shrine and sub-shrines, without vimanam. Main and the Ambal Shrines Sanctum Sanctorum are having the evidence of vimanam at inner Eluthagam level by providing "brick work" and "Konavittam" respectively. To identify the style of vimanam, there is no photo copy documentation available anywhere.

At present top of the roof is covered with the tin sheets by the local devotees. Temporary entrance door is found at the Artha Mandapam of the Main Shrine. No settlement was found at anywhere. Main electrical service connection is hanging without support. Vegetation growth found at the inner boundary. All-round of Sanctum Sanctorum in the Ambal shrine and sub-shrines; stone courses of outer veneer with core filling have fallen from Adhisthanam to Vuthiram portion. Except the Artha Mandapam of the Main Shrine; no roof Pavukkal is found. Certain fallen stone courses were found scattered within the boundary, and certain course stones were dumped at the boundary side. Hence special care has to be taken for classifying the required sizes to merge with the missing places by engaging the services of experienced Sthapathies. Kabothagam, Vyalum courses and roof Pavukkal stones are also not traceable. Additional mandapam has been constructed for koshta Dhakshinamoorthy by closing the inscriptions.

The above said monument was inspected by a team of Engineers from the PWD and Archaeology Departments on 03.08.2008 in connection with identifying the works to be carried out for 2008-2009 under XII Finance Commission Grants, as sanctioned to a

tune of Rs 16.00 Lakhs by the Government in G.O. Rt.No.159/ Tourism & Culture (MA2) Department/ dated 8.10.2007.

While inspecting the above temple, it was ascertained that the following conservation works are felt necessarily taken up for its preservation. Accordingly, an archaeological prescription with notes of inspection was issued as follows to the Public Works Department, to prepare the detailed estimate as per the archaeological norms.

As per the archaeological norms, necessary documentation by photograph on various stages is to be taken for reference and record. One set of album is to be handed over to this department along with the completion report.

- Outer wall stone courses are found partially hanging and fallen features may be interned in the earth on a spot as near as possible below the position it originally occupied. While falling due to its age and weathering action, there may be a chances to be broken in to pieces. By engaging experienced Sthapathy, rough sketch elevation by showing the courses of each side is to be drawn manually and available individual stones,

suitable stones found from the earth; may be numbered, both in drawing and stones as per the following procedure.

In doing this, care should be taken not to incise / scribble the numbers or to apply to the exposed surfaces of the stones using any oil paint or other pigment or stain which will be difficult to remove again. The simplest plan is to number the stone on their right corner faces with wet colour chalk and photograph them and then course stones to be removed, sorted and arranged in an orderly way on the respective sides itself. Removal also has to be done under the direct supervision of the experienced Sthapathies, by engaging manual labour very carefully by preserving every bit of the archaeological evidence available for reuse during the reconstruction of work. While dismantling proper care should be taken to retrieve old materials in good condition as far as possible. It maintains originality and as well as saves on cost.

- After dismantling, the stones should be numbered on the back or on some other surface which will not show afterwards, in paint or other durable medium in order that stones may be replaced in their original positions.

- Balipeedam and Nandhi mandapam may be completely removed and resetted after strengthening the foundation.

- Without ornamental works, new stones of Kabhothagam and Eluthagam may be provided in the missing places. In all reconstruction, care must be taken that the new stone work to be match with existing texture and colour and it may be dressed in the same way.

- Before resetting and after the completion of work, the stones should be thoroughly raked or washed out and loose mortar or dirt extracted. The back side and joints of the stones should also be cleaned and they should be replaced in their correct positions, re-bedded in combination mortar 1:1:5 and pointed with same mortar as a recessed pointing.

- New Pavukkal (roof slab) may also be provided by filleting the gaps with 12 mm stone chips and weathering course to be laid.

- By providing weathering course pressed tiles can be pasted on top with proper gradient.

- Temple modeled door may be provided at the entrance of Main Shrine and Amman Shrine. Grill door may be provided for the other sub-shrines.

- Undulated flooring found at Artha Mandapam and sub-shrines are to be removed completely and resetted.

- Inscriptions found at Adhistanam level was completely closed by constructing the later addition mandapam at the south west corner of the outer main shrine. Without damaging the adjacent main structure, the additional encroachment may be evicted very carefully.

- For easy access of visitors from the main gate; necessary cut-stone flooring around the temple may be provided.

- Chain link fencing to be provided over the RR masonry bed supported by ISA 6565-6mm Ms Angle post with necessary Main and Wicket gates.

Using pure cement mortar is strictly banned. This is because cement does not bond with older material usually lime mortar as it is a heavier material. Only combination mortar 1:1:5 for the re-construction and pointing are to be used. An extract of Gallnut and Jaggery is to be mixed

with combination mortar at the time of execution in equal proportion of 8 kg/Cu.m. Using lime should be free from salt and has a high iron content, which is currently available only at Pollachi, as observed by the Archaeological Survey of India.

Lime mortar to be used should be well ground. To prevent blistering, the slacked lime mortar should be left for 2 to 3 weeks in a heap to stake, be reground and used. During the work, well cooked lime mortar to be mixed with cement in proper ratio for preparing combination mortar.

Not exceeding 2% Provision for the Technical Consultant charges may be provided in the estimate as followed during XI Finance Commission Work.

On getting estimate from the Public works Department, it was scrutinized by the conservation section and found that, due to inadequacy of amount; ruined Vinayagar, Murugan and Madappalli were left over from the restoration works. On getting estimate committee's opinion, it has been countersigned on 30.12.2008 by the Principal Secretary and Commissioner of Archaeology Department. During the execution of works, it has been inspected several times by the various officers of the

Department of Archaeology along with PWD Engineers and necessary guide lines were issued for removal and resetting. During the resetting of work by using the interned stone at Chandikeswarar sub-shrine; a cow giving milk to its calf engraved sculpture was found and brought to light.

Outer wall stone courses are found partially hanging and fallen features interned in the earth on a spot were removed carefully to use the same at the missing portion.

- After strengthening the foundation outer veneer stones were replaced in their original positions by providing necessary core filling as per the existing..

- Palipeedam and Nandhi mandapam were completely removed and resetted after strengthening the foundation.

- Without ornamental works, new stones of Kabhothagam and Eluthagam provided in the missing places were bedded in combination mortar 1:1:5 and pointed with same mortar.

- New Pavukkal (roof slab) provided by filleting the gaps with 12 mm stone chips and pressed tiles provided over the weathering course.

- Temple modeled door has been provided at the entrance of Main Shrine and Amman Shrine and the Grill doors for the sub-shrines.

- Undulated flooring found at Artha Mandapam and sub-shrines were removed completely by Aressing.

- Later addition mandapam at the south west corner of the outer main shrine. evicted and inscriptions found at Adhistanam level was brought to the light.

- Chain link fencing provided over the RR masonry bed supported by ISA 6565-6 mm Ms Angle post with necessary Main and Wicket gates.

More funds are necessary to fulfill the following remaining items of work.

- To restore the subshrine of Vinayaga and Murugan by strengthening foundation with available stone at site

- Fallen Madapalli to be re-constructed

- Replica vimanam to be reconstructed.

This temple attracts the local villagers and devotees from Madurai and surrounding Districts. Thus the Sivan koil has been preserved and restored for the sake of devotee's posterity.

RESTORATION WORKS TO THE UDAYAGIRI FORT WALL AND D'LANNOY'S TOMB AT PULIYURKURICHI IN KALKULAM TALUK OF KANYAKUMARI DISTRICT

Udayagiri Fort is situated on Trivandrum –Nagerkoil Highways (NH47) at Puliyurkurichi village about 14 Km from Nagerkoil and 2 Kms from the famous Padmanabhapuram Palace. Original fort wall was constructed with mud during the reign of Venad King Sri. Vira Ravivarma (1595-1607 CE) and later it was re-constructed with stone in the reign of Marthandavarma (1729-1758 CE). The Nattars of Nanjilnadu made donations for the construction of this fort. The fort is one of the treasure houses of the Venad and Travancore history; it also served as a training centre of the army personnel, manufacturing yard of Cannon and military equipments under the supervision of D'Lannoy, the Dutch General who served as the Chief of the Travancore Army.

Based on its heritage; the above said massive fort wall and the tomb portion consisting 2150.0 Sq.m. area has been declared as a protected monument in G.O.Ms No 226/ Tamil Development and Culture (MA2) dept/ dated 4.9.1997.

The massive hillock was covered by constructing fort wall to a length of 2800 M with a height varying from 5.0 m to 7.0 m using granite stones and laterite blocks. Top of the coping has been finished with trapezoidal shape leaving alternate gaps for positioning guns and the same has been plastered with grinded lime mortar. Two remnants of manufacturing unit used for the arms and ammunitions found at the inner fort are in ruined condition.

D'Lannoy, the supreme Commander of a formidable army of Travancore, is entombed in a Chapel surrounded by a massive wall without roof and it bears inscription in Tamil and Latin. The emblem of the Dutch Government is also inscribed in the tomb.

In order to conserve this fort wall and D'Lannoy's tomb Government have sanctioned Rs 9.00 Lakhs for 585 M of fort wall and Rs 3.00 Lakhs for D'Lannoy's tomb under XI Finance Commission Grant. In addition, conservation work to a length of 450.0 M had also been carried out under Part II scheme for 2005-06.

Based on the recommendation of the District archaeological Officer, Nagercoil and Dr. R.Lalmohan,

Convener, INTACH, Nagercoil Region, next phase proposal was sent to the Government under XII Finance Commission Grant for the conservation of remaining Fort wall and providing replica roof for the chapel, where the D'Lannoy's tomb exists.

Government has sanctioned Rs 90.00 Lakhs for 2008-09 under the XII Finance Commission Grants for the second phase of the conservation works to the above said monument in G.O. Ms No. 108 Tourism & Culture (MA2) Department Dated 6.6.2007; based on the proposal estimate was prepared for Rs 60.0 Lakhs to the Udayagiri Fort and Rs 30.00 Lakhs to the D'Lannoy's Tomb. Based on the Government order, the Executive Engineer, Public Works Department Buildings (C&M) Division, Nagerkoil has submitted the estimate for countersignature. While scrutinizing the estimate, the following descrepancies were found.

FORT WALL:

Assumed that the estimate has been prepared without ascertaining the condition of the fort. Due to heavy Growth of jungle plants, approach way is not permitted to proceed in southern and northern side.

- Proposal for the removal of vegetation plants were found at the eradicated area which was carried out during the last Finance Commission.

- Apart of southern and northern side, vegetation were found on the wall here and there only and not fully grown as mentioned in the estimate. As far this department concerned, only fort wall is to be protected. While the place is under the control of the Forest Department, necessity of uprooting the jungle vegetation to a breadth of 10.0 m to 12.0 m at the inner and 5.0 m to 8.0 m breadth at the outer fort is not known.

- The data worked out for removing jungle is also shown on higher side. While working out the rate for providing scaffolding arrangements as a separate item, the scaffolding rate again worked out for uprooting the jungle is not correct. Similarly data for uprooting the jungles with thorns made in the estimate. In this situation, necessity of blow lamp process is not known.

- While the fort wall is constructed with ashlar stones and laterite, the necessity of removing lime plastering, pointing and re-plastering are shown in the estimate are not necessary. It should be restored as per the original.

- Supplying and fixing new cut stone courses to the fort wall is proposed in the estimate. Usually the fallen features may be interned in the earth on a spot as near as possible below the position it originally occupied. While felling due to its age and weathering action, there may be a chance to broken in to pieces. Interned portions are to be brought to the light by careful excavation without damaging; it may be used for restoring the same without changing its size.

D'LANNOY'S TOMB:

- Estimate stated that "collapsed and the remaining out of plumb, few of ornamental grills are found missing". While inspecting the tomb it was found that it is in tact, except the tiled roof of the said tomb.

- The above said other works were already carried out Under XI Finance Commission Grants.

- Anti termite treatment for the newly proposed roof were made in the estimate, the reason for the treatment at roof level is not known.

- L.S. provisions made in the estimate are also found on higher side.

For avoiding the duplication of work, it was decided to verify under joint inspection. In order to identify the works under this scheme, the site was inspected by the Technical Team of Archaeology Department and Public Works Department on 26.9.2008. Dr. R. Lalmohan, Convener, INTACH, Nagerkoil Region was also present. Due to heavy growth of bushes and plants, there was no way to proceed beyond certain area of the inner fort. Similarly, outer portion also covered by residential area in north and part of the eastern sides. Hence, for getting clear position of the un-restored portion of the fort wall, the team recommended the preliminary work to clear the bushes for easy access of the inner fort, Providing teak wood main door with wicket gate at the entry point, information board in polished granite stone and restoring the fort wall at certain length which was clearly approached at southern side. Similarly, the Technical team consulted with Dr. R. Lalmohan, Convener, INTACH and stated that further action will be taken on D'Lannoy's Tomb based on the documentary evidence by adopting the Archaeological principles. Dr. R. Lalmohan, Convener, INTACH promised to bring the documentary evidence as early as possible. Accordingly, the evidence

produced by Dr. R. Lalmohan was scrutinized and found that, it is not aligned with this monument and compared with similar churches at Nagerkoil or its surroundings. Hence, PWD has been directed to prepare the estimate for the Fort wall.

Estimate prepared by the PWD for the preliminary works at a cost of Rs 10.0 Lakhs was countersigned by the Principal secretary and Commissioner of Archaeology on getting opinion of the Estimate Committee. Works were carried out during 2008-09 and the expenditure of Rs 9.92 Lakhs was incurred and Utitisation Certificate sent to the Government.

Accordingly, the adjacent inner site around the Fort wall except eastern side other sides were found with clear passage after the removal of vegetation. At present 210.0 RM fort wall restoration has been completed at eastern part of the Traveler's Bungalow. By including this, totally 1245.0 RM fortress has been restored out of 2800 RM. Due to negligence of curing, cracks found here and there in the recently restored bream wall at southern side. Tree plants grown over the bastions were not uprooted properly at southern side.

The Principal Secretary and Commissioner of Archaeology & Museum Department Dr.T.S.Sridhar, I.A.S. with the District Collector of Kanyakumari District, Thiru Rajendra Kumar along with the Technical team of PWD and Archaeology Department inspected the site on 4.4.2009 in order to identify the remaining works to be carried out under XII Finance Commission Grants at the fort and finalize design for providing roof over the D'Lannoy's Tomb. Dr. Lalmohan, Convener, INTACH, Nagerkoil Region was also present.

Necessary instructions were issued by the Principal Secretary and Commissioner of Archaeology Department for the further works to be carried out in the remaining wall portion of the Udayagiri Fort. After scrutinizing the site of the D'Lannoy's tomb at various angles thorough discussion made with Technical team, the Principal Secretary and Commissioner of Archaeology Department has directed "to proceed with the remaining restoration works to Udayagiri fort" at the spot itself. As for the D'Lannoy's Tomb, the Principal Secretary and Commissioner of Archaeology Department studied the matter by analyzing the copies of various letters and orders issued from time to time during the Travancore

Maharaja's period which was supplied by Dr. R. Lalmohan, Convener, INTACH, Nagerkoil Region at the spot on 4.4.2009. Finally, as a conclusion the Principal Secretary and Commissioner of Archaeology Department has issued a notes to conservation section on 5.5.2009 based on the letter written by Mr. S. Horsley, Assistant Engineer, Southern Division, Travancore on 31.5.1875 stating that "the document undoubtedly makes it clear that the tombs were left uncovered (without any roof) this led to a dilapidated condition of those tombs. Moreover the side walls of the building have been finished with coping, leaving no grooves for fixing the rafters for supporting the tiles. This design of the wall proves without doubt that the tomb blocks had dwarf walls only and no connecting wall covering the entire length and breadth of the monument.

Further there is no mention anywhere in our records to show that it was used as a Church. Hence the argument that this must have been a Church with tiled roofing cannot be accepted. Accordingly the design as available now may be retained and the restoration and maintenance work may be proceeded with taking the above facts in view."

Based on the above instructions to finalize the remaining works under the above scheme, the technical team, again inspected the spot on 8.5.2009 and observed that the following conservation works are felt to be necessarily under taken for its preservation.

Necessary documentation by photographs on various stages was taken as per archaeological norms. One set of album should be handed over to this department along with the completion report.

UDAYAGIRI FORT WALL

While preparing the detailed estimate for the further works, the specific length of the restored and proposed work portions are to be marked in various colours in the plan for avoiding the duplication of works.

- Openings found at western side to reach Traveler's Bungalow may be closed about a length of 8.00 metres using RR Masonry in cement mortar 1:5 and also attending the further disturbed portion of 8.0 metres at southern side.

- Two remnants of manufacturing unit used for the arms and ammunitions found at the inner fort to be

protected by providing a chain link fencing supported by MS angle post over the dwarf wall by covering an area of 6.0m x 6.0m with wicket gate having 0.90mx 1.20m.

- Vegetations grown at the eastern side and parts of the north & southern sides are to be removed for easy access about 5.0 m breadth from the berms.

- Berms completed 210.0 RM from the IB Compound at the southern side. Remaining portion at Northern and Southern sides are to be restored by using available boulders at the surroundings. It maintains originality as well as saves on cost. Berms not available at the upper gradient only, and other portions may be left over as it is.

Laterite stone steps and wall found at the first bastion of the southern side is to be plastered with combination mortar 1:1:5

- The coping of the arch finish was found broken here and there of the northern side may be rectified as per the original pattern.

- The possibility of outer top brick work portion may be plastered using combination mortar 1:1:5

D'LANNOY'S TOMBS

- Scrub jungle Vegetation grown inside the campus and 2.00 m Breadth at the outer boundary may be removed.

- De-plastering and re-plastering the outer frontage wall and flaked out portion of the inner wall to be restored using grinded lime mortar 1:1:5 and merging with existing level.

- Well found with closed lid to be de-silted and necessary lintel with fixed pulley to be provided.

- Script found on the tombs are to be labeled in the polished black granite stone separately and placed over the dwarf pedestal for the public view at the frontage of the outer tombs.

- Inside open space to be leveled with proper gradient to drain out the rain water through he the existing available vent.

- Pump room may be altered suitably to use it as a security room.

Using pure cement mortar is strictly banned. This is because cement does not bond with older material usually

lime mortar as it is a heavier material. Only combination mortar 1:1:5 is to be used for the re-construction and pointing works. An extract of Gallnut and Jaggery is to be mixed with combination mortar at the time of execution in equal proportion of 8 Kg/Cu.m. Using lime should be free from salt and has a high iron content, which is currently available at Pollachi, as observed by the Archaeological Survey of India.

Lime mortar used should be well ground. To prevent blistering, the slacked lime mortar should be left for 2 to 3 weeks in a heap to stake, be reground and used. During the work, well cooked lime mortar to be mixed with cement in proper ratio for preparing combination mortar.

Estimate received from the PWD was not found as per the inspection notes and found that the estimate was prepared for the Udayagiri fort wall for Rs 70.00 Lakhs against the balance amount of Rs 50.08 Lakhs and Rs 3.437 Lakhs for D'Lannoy's against the balance amount of Rs 30.00 Lakhs.

Hence, the above estimate have been scrutinized by the Technical Team of Archaeology Department at the spot with estimate on 07.07.2009 and asked the Assistant Engineer, PWD Asaripallam to revise the same according

to the requirements. Revised estimate received from the Executive Engineer, PWD Maintenance Division, Nagercoil vide Letter dated 15.07.09 was scrutinized by the Engineering section and placed before the estimate committee for the recommendation of counter signature. Committee recommended the to the Principal Secretary & Commissioner of Archaeology Dept. to counter Sign the estimate for the below said amount and countersigned on 24.07.2009.

Conservation Udayagiri Fort Wall - 36, 06,694/-

D'Lannoy's Tomb - 2, 43,306/-

Amounting totally for Rs 38.50 Lakhs. The works commenced during 8/09. The remaining amount or Rs 41.50 Lakhs has been surrendered to the Government vide T.O letter dated 22.10.2009 to utilize for some other works.

During the execution of works, site has been Jointly inspected by the Technical team of Archaeology & PWD Engineers on 11.03.10 and found that the following works are completed.

- Jungle clearance works completed and about 5.0m width North & Eastern side of laterite fort wall was setrighted & plastered with combination mortar.

- Two furnaces used for manufacture of cannon balls found at inner fort have been protected by providing chain link fencing with a entrance gate as directed.

D'Lannoy's Tomb:

Clearing the scrub jungle inside the campus and outer boundary.

- Outer frontage wall deplastered and plastered with combination mortar.

- Silt cleaned from the well and provided with pulley.

- Inside flooring provided with precast slab with gradient to drain water.

- Existing pump room altered suitably to use it as a guard room.

Thus the unique grant of XII Finance Commission fort wall and tomb are protected for posterity under Heritage components grants.

Office Note of Dr T.S.Sridhar., I.A.S., Principal Secretary / Commissioner to "C" Section

Date: 5.5.2009

The D'Lannoy's Tomb was declared as a protected monument by the Department of Archaeology in the year 1997. According to the materials available on hand i.e. photographs, sketches and reports, the monuments comprised 7 tombs, consisting of D'Lannoy's and his family who were buried in the precincts of the Udayagiri fort.

The tombs are covered by a dwarf roof and surrounded on all four sides by a taller wall of about 12 feet height but without any roof. There is no mention in any of the documents regarding the construction of a church in the site. D'Lannoy's was the "General of the Dutch" who was defeated in the war with the Maharaja of Marthandavarman at Colachel. The fort was utilized as a training centre for the army personnel and for manufacturing guns, mortars, explosives, cannon shells etc. It was also used as a jail for the imprisonment of Tippu Sultan's soldiers in the Udayagirl fort in the year 1891.

When I was the Sub Collector of Padmanapuram, I used to frequently proceed on night rounds to catch illicit movement of rice being smuggled to Kerala . On one such occasion, we unexpectedly caught a bullock cart which to our surprise carried not rice, but cannon shells of different sizes. They were all iron balls which were covered with dust and mud. On enquiry, the cart man confessed that these taken out from the compound of the Udayagiri fort where many such balls were lying hidden. We surveyed the entire area and managed to recover more than 5000 such cannon shells which are now housed in various Museums of the department.

Dr. Lal mohan, Convenor of INTACH, Nagercoil chapter has been repeatedly writing to us and insisting that D'Lannoy's tombs are in fact a church with the dilapidated roof covering it. To prove his point, he has also attached copies of various letters and orders issued from time to time during the Travancore Maharaja's period. However, perusal of those documents undoubtedly makes it clear that the tombs were left uncovered (without any roof) which led to a dilapidated condition of those tombs. The Assistant Engineer, Southern Division Mr.S.Horsley in his report dated 31st May 1875 has clearly referred to the roofless condition of the tombs

which hastened the sorry state of the tomb structures. In order to prevent the graves from being destroyed, he has suggested "that it would be best to roof the building and execute sundry repairs to the door/ and window ways /and provide them with cannon rough shutters". In the same letter he has also mentioned that the building (now roofless) "is so much overgrown with trees and bushes which have spread their roots into the cracks in the walls that in a few years I expect the walls will fall down altogether and thereby obliterate all traces of the graves." The above fact also confirms that in the year 1873, the building surrounding the tomb at the time of inspection by the Assistant Engineer were roofless which must have been the original design as well. Moreover the side walls of the building have been finished with coping, leaving no grooves for fixing the rafters for supporting the tiles. This design of the wall proves without doubt that the tomb blocks had dwarf walls only and no connecting wall covering the entire length and breath of the monument. Moreover there is no mention anywhere in our records to show that it was used as a church. Hence the argument that this must have been a church with tiled roofing cannot be accepted. Accordingly the design as available now be retained and the restoration and maintenance work may be proceeded with taking the above facts in view.

CHINNAYANKULAM (SQUARE SHAPED STEPPED TANK) AT CHINNAYAMPET IN CHENGAM TALUK OF TIRUVANNAMALAI DISTRICT

The tank is situated in the field survey No 190/1 at the entry of the Chinnayampet Village from Arur, 34 Kms from Tiruvannamalai & 4 Kms from Thanipadi Village. This Square shaped stepped Tank was built around 16-17th centuries CE by Chinnaya Naick- a local chieftain. The period is ascertained from the style of the sculptures in the steps and parapet walls built of ashlars stone masonry. There are beautiful sculptures in Hoysala style. All along the steps the panel of the sculptures depicts lot of erotic sculptures, animals, day- to-day activities and war scenes from the great epics Ramayana and Mahabharatha etc. These panels are found in the steps and in the parapets of the tank. Based on its artistic heritage, it has been declared as a monument in the year 1988 and brought under the Archaeological Protection as per the Act 25/1966 with an extent of 4.50 hectares.

For rectifying the defects found in the tank as a special repairs, Government have allotted an amount of Rs. 3.70 Lakhs under the X1 Finance Commission Grants

vide GO Ms No 42/ Tamil Development Culture & Religious Endowment Department/ dated 14.03.02. As ordered by the Government, following works has been completed through the PWD, Buildings C&M Division, Tiruvannamalai.

Vegetation growths found in the gaps of the stone slabs were removed. Silt has been removed by pumping water. Barbed wire fencing was provided around the tank with RCC post supports. Defects were rectified by removing and resetting the steps at the eastern and western portion of the tank from the base to top of the parapet. Existing gate pillars were strengthened and grill gate has been provided. Twin Nandhi joined with single head has been placed in its position. Vitreous enamel information and notice board were placed at the entry to the tank.

In order to restore other parts of the stepped tank and fulfill the remaining works, Government has further allotted Rs 3.00 Lakhs under XII Finance Commission Grants in G.O. Ms No 159/ Tourism & Culture (MA2) Department/ dated 8.10.2007.

As per the Archaeological norms, a team of Engineers from the PWD and Archaeology Departments with District Archaeological Officer and Technical Consultant inspected the site on 29.01.2008 in connection with identifying the works to be carried out.

Archaeological Prescription as notes of inspection was issued as follows to the PWD for preparing estimates.

During the inspection, the tank was found with full water level and hence it has been decided that the de-watering is not possible at this stage. The restoration measures were recommended as under:-

- Disturbed steps found from the top to the possibility level of the steps at northern & southern side to be rectified.

- Uprooting the thorny vegetations growth found within the fencing area.

- PCC platform to be extended up to the fencing.

- Blocked earth and debris to be removed from the out-let and in-let channels of the tank.

- Falling Eucalyptus trees found at the western side of the tank are to be auctioned with its roots under intimation to this office. Overhanging branches of the Tamarind trees also to be pruned.

- Existing barbed wire fencing was disturbed due to vandalism. Barbed wire fencing may be provided additionally with vertical along with existing one as a additional safeguard.

- To prevent the accumulation of silt from the surrounding area, during the rainy season, kerb around the boundary about 1'-00" height down and wall to be constructed using brick in cement mortar, as an additional safeguard.

- Additional benches may be provided around the tank.

- An information board may to be provided on road side as specified.

This is a special nature of work. It is not possible to execute the work without the guidance of the Archaeologist/ Archaeological Engineer. Hence the

following actions where insisted as per the Archaeological norms.

- Photo documentation at each stage is to be taken. One set of album was to be handed over to this department along with completion report.

- Using pure cement was strictly banned except as directed. Only combination mortar 1:1:5 (1 lime, 1cement and 5 sand) is to be used. An extract of gallnut and jaggery was mixed with combination mortar at the time of execution in equal proportion of 8 Kg per Cubic metre. Using lime should be free from salt and must have high iron content, which is currently available at Pollachi, as observed by the Archaeological Survey of India. Lime mortar used should be well ground. To prevent blistering, the slacked lime mortar should be left for 2-3 weeks in heap to stake, be reground and used. During the work, well cooked lime mortar should be mixed with cement in proper ratio for preparing combination mortar.

After the restoration the tank looks majestic in its glory, and has now become a popular tourist spot. The work was completed in 3/2008 and the Utilization Certificate submitted to Government during 5/2008 itself.

Sivan Koil at Ulagapuram village in Vanur Taluk of Villupuram District

Temple is situated at the extreme eastern part of the Ulagapuram village which lies about 6 kms south-east of the Tindivanam-Marakkanam road and is connected by a village track taking off in a southerly direction. The earliest inscription engraved on the southern side wall of the central shrine is dated in the third regnal year of Rajakesarivarman, who has to be identified with Rajaraja I (ARE 129 of 1919). According to the inscription, the Siva temple was called the Kailayamudaiyar alias Arikulakesari Iswaram Udaiyar; the temple was said to be situated in Ulogamadevipuram in Peraayur nadu, a subdivision of Oymanadu. Based on its heritage, it has been declared as a protected monument, based on the Archaeological Protection Act 25/1966 .

The temple is eka-tala (single tier) and faces east; the Garbhagriha is built of stone and the super structure is of brick. In front of the Garbhagriha is a Mukhamandapa with an entrance from the southern side. While taken over by this department, it was found that the west and northern walls have collapsed bringing down with them a part of the superstructure of vimanam longitudinally.

For rectifying the defects found in the temple as special repairs, Government have allotted an amount of Rs. 8.00 Lakhs under the X1 Finance Commission Grants vide GO Ms No 287/ Tamil Development Culture & Religious Endowment Department/ dated 27.11.03. As ordered by the Government, following works has been completed through the PWD, Buildings C&M Division, Villupuram.

Scattered vegetation was removed around the temple. After documenting, the damaged leaning vimanam has been removed for replica works. Foundation was strengthened and kalkaram (stone masonry) resetted up to the Vyazam. Moolavar (main deity) was placed in its original posture in the Sanctum Sanctorum. A wooden door at Antharalam has been provided. Vitreous enamel information and notice board were placed at the entry.

In order to fulfill the remaining works, Government has further allotted Rs 7.95 Lakhs under XII Finance Commission Grants in G.O. Ms No 159 Tourism & Culture (MA2) Department/ dated 8.10.2007.

As per the Archaeological norms, a team of Engineers from the PWD and Archaeology with District Archaeological Officer and Technical Consultant

inspected the site on 05.12.2007 in connection with identifying the works to be carried out and archaeological Prescription as notes of inspection was issued as follows to the PWD to prepare detailed estimate.

Based on the existing vimanam, necessary drawings were prepared manually to its original shape by engaging department Sthapathy M.Arun and confirmed through Dr.Ganapathy Sthapathy.

The restoration measures were recommended as under:-

Main Shrine:

- Re-construction of the vimanam with its original tier (tala) according to the documentation using same size of bricks and specially grinded combination mortar 1:1:4 with its niches and plastered with combination mortar 1:1:5 and colour washing the same by using distemper with biscuit colour to be bought from M/S Four Square Trading Company. Closed roof to be supported with prop as soft cushion of gunny cloth and steel plates. So that, the entire roof does not carry dead load during construction of vimanam. After the entire work is over, the load should be gradually placed on the roof while watching for any sign of stress.

- Re-placing the windows by removing the brick work found in-between Mahamandapam and Antharalam for ventilation and sizing the projected course stone placed at the northern side of the outer veneer to be removed by using machine.

- Removing and resetting the wave flooring at Mahamandapam.

Amman Shrine:

- Amman Shrine vimanam is to be strengthened by removing the dead mortar. Restoring and mending the ornamentation with its original designs using combination mortar1:1:5. Inner flooring, weathering course, temple modeled door and steps at the entry are to be provided. Colour washing the vimanam by using distemper with biscuit colour to be brought from M/S Square Trading Company.

- The tilted brick structures of Chandikeswarar temple in dilapidated condition at northern prakaram adjacent to Mahamandapam to be supported by constructing the same size brick wall in combination mortar 1:1:5.

- Strengthening the Suryan Sub-shrine at northern prakaram by plastering the same with combination mortar 1:1:5 and housing the deity which is placed on the outer yard.

General:

- Complete eradication of vegetation growth over the structure should be done.
- Constructing the pedestals with brick work in cement mortar for the scattered loose sculptures.
- Strengthening the existing well using combination morter 1:1:5 and provide lintel by constructing pillars and close the opening with weld mesh frame for safety.
- Necessary documentation by photographs on various stages to be taken as per archaeological norms, One set of album to be handed over to this department along with the completion report.

Using pure cement mortar is strictly banned. This is because cement does not bond with older material usually lime mortar as it is a heavier material. Only combination mortar 1:1:5 is to be used for the re-construction and pointing works. An extract of Gallnut and Jaggery is to be mixed with combination mortar at the time of execution in equal proportion of 8 Kg/Cu.m. Using lime should be free from salt as it has a high iron content, which is

currently available only at Pollachi, as observed by the Archaeological Survey of India.

Lime mortar to be used should be well ground. To prevent blistering, the lacked line mortar should be left for 2 to 3 weeks in a heap to stake, be reground and used. During the work, well cooked lime mortar to be mixed with cement in proper ratio for preparing combination mortar.

2% Provision for Technical Consultant Charges may be provided in the estimate as followed during XI Finance Commission work.

Accordingly, estimate has been prepared by the Public Works Department by leaving certain items of work due to inadequacy of funds, fluctuation of cost and giving other provisions as followed by the Public Works department. On scrutinizing the estimate by the Archaeology Department, the estimate was countersigned on 18.1.2008 to execute the work as directed by the Government. The following works were taken up and completed.

Main Shrine:

- Replica of the vimanam with its original tier (tala) with its niches completed according to the documentation.

Amman Shrine:

- Amman Shrine vimanam was strengthened by removing the dead mortar. Restored by mending the ornamentation with its original designs using combination mortar1:1:5.

Parivara Shrines:

Strengthened the Suryan Sub-shrine at northern prakaram by plastering the same with combination mortar 1:1:5

General:

vegetation grown over the structure was removed

During the execution of work, theArchaeological Department Sthapathy M.Arun, has been directed on 6.2.09 to inspect and correct the work if any deviations found. The Assistant Engineer T. Thangavel of this department also inspected the site on 27.2.2009 and reported that the civil works has been completed except electrical works. On completion of the above works, Dr. T.S. Sridhar, the Principal Secretary and Commissioner of Archaeology Department inspected the site and found that as per the estimate, all civil works were completed except electrical works.

Notes of inspection were issued by the Principal Secretary and Commissioner of Archaeology Department, for fulfilling the remaining works in full shape as follows:-

- Pending electrical works are to be completed as per the schedule.

- Re-placing the windows by removing the brick work found in-between Mahamandapam and Antharalam for ventilation and sizing the projected course stone placed at the northern side of the outer veneer to be removed by using machine.

- Removing and resetting the wave flooring at Mahamandapam of the main shrine.

- The leaned brick structures of Chandikeswarar temple have been attended by pointing work; this is not correct. This may be removed after documenting the same and replica may be made by strengthening the foundation.

- Suryan deity placed with loose sculptures to be housed in its original place.

- The scattered loose sculptures to be housed by constructing the pedestals with brick work in cement mortar.

- Strengthening the existing well including providing lintel by constructing pillars and covered with weld mesh frame as a safeguard.

- Cut stone flooring around prakaram may be laid.

- Temple modeled door and steps to be provided to the Amman shrine.

- Fencing around the present boundary to be provided to avoid encroachment.

On completion of works by the Public Works Department, Kumbabishekam was held on 26.8.2009 by the villagers of Ulagapuram.

Now, the local villagers are happy with the department's effort and eager to resume religious and devotional activities.

PROVIDING VITREOUS ENAMEL PROTECTION NOTICE BOARD (PNB) TO THE MONUMENTS LOCATED AT VARIOUS DISTRICTS.

Tamilnadu State Government has declared 85 historical monuments for protection & preservation of the Department of Archaeology. Usually, based on its historical importance and heritage value having more than 100 years old are declared as a monument under the Archaeological and Historical and Archaeological sites and Remains Act of 25 / 1966. (25 of 1966).

Most of the declared monuments were affected by various causes like weathering action, age & natural calamities. Apart from the above factors, additionally it was also affected by human vandalism. Hence the monuments needed caution boards to denote its protection under law and to create awareness among the public.

Government sanctioned Rs 5.00 Lakhs under the XI Finance Commission Grants for providing vitreous enamel board to the monuments as per the Archaeological Survey of India standard. 39 monuments had already been covered under the XI Finance Commission Grants (2002-2006).

Again, Government has sanctioned Rs 1.80 Lakhs under the XII Finance scheme for Vitreous Enamel Protection Notice boards to further 22 monuments at a cost not exceeding Rs.6553/- for each board in G.O. Ms No 111/ Tourism & Culture (MA2) Department/ dated 02.06.2008. Accordingly, necessary specification as mentioned below was prepared by this department as followed during XI Finance Commission Grants work and sent to the PWD with sketches to prepare the detailed estimate.

"Fabricating and supplying vitreous enamel protection notice board having a size of 0.50m x1.0m made out of 16 G MS sheet and enameled in blue background with white letters with specified matters in two languages of Tamil & English as directed by the department with emblem and framed with ISA5050-5 mm MS angle and supported with 50x5 mm MS flat on its rear side and to be fitted in ISA 7575-10 mm MS angle post at the centre having 3.0 m height and the bottom to be welded with cross piece and the cost including the bolt & nut required for the work, Painting with approved quality of smoke grey colour over the priming coat for the frames & angle post and also labour for setting right and fixing boards by providing concrete and earth work, materials required for the work, conveyance charges, packing and forwarding charges etc complete"

Till the financial year of 2008; 10 estimates were received from the various District Executive Engineers of the PWD. During the review meeting with Joint Chief Engineer (B) PWD; by the Principal Secretary and Commissioner of Archaeology Department it was recommended that the works amounting below Rs 2.00 Lakhs are to be carried out by the Department of Archaeology. By explaining the delegation of financial powers of this department, the procedure of Technical Sanction was clarified. Further, it was informed that the Executive Engineers are to be advised to return back the countersigned estimates to this department for further action.

Accordingly, on receipt of the Countersigned estimates, Thiru. R. Narayanan, Assistant Executive Engineer(M), Chennai prepared the district wise detailed estimate and submitted for the Technical Sanction of the Principal secretary and Commissioner, Department of Archaeology. On getting recommendation of the Estimate Committee, estimate was technically sanctioned. Based on the advise of the Principal secretary and Commissioner, Department of Archaeology; estimate has been forwarded to the concerned jurisdiction Engineers of this department for execution. All the protection boards have been installed at the monuments sites for the benefit of public.

CONSERVATION WORKS TO THADAGAPURISWARAR TEMPLE AT MADAM IN VANDAVASI TALUK OF TIRUVANNAMALAI DISTRICT.

Madam village lies about 35 kms from Aarani and 5 kms towards south from the Endhal Junction at Vandavasi - Chetput road. The live temple is situated in the field no. 177/2 having an extent of 7314 m^2 but the temple area is 2730 m^2. It has been declared as a protected monument vide G.O.Ms.No 46 TDC & RE (MA2) Department dated 27.02.01 and taken over by this Department for its maintenance.

This stone temple was constructed during the I Kulothunga Chola period. More than 57 inscriptions from the Chola periods to various periods were found in this temple. During 1363; (14th ACE); Sambabika Amaravathy Saththanar constructed the Kalyana mandapam. In 1384 (14th ACE);Thirumalai Kizhan Nallakamban Thennavarayan built the outer Gopuram. This temple used to be called "Thiru Agneeswaramudayar" during I Kulothunga period (1072 ACE) and "Kulanthai Andar" in second Rajarajan period (1166 ACE); now called as "Agneeswarar" alias

"Thadagapuriswarar" One of the inscriptions specifically mentions about the genealogy of Vijayanagara kings (232 of 1919). The Temple consists of Sanctum Sanctorum, Inner Mandapam, Mukha Mandapam, Maha Mandapam, Kalyana Mandapam, Sub-Shrines, Amman Shrine and Main Gopuram. A high compound wall encloses the whole complex with brick work in lime mortar over the base of stone wall. Most of the temple portions were heavily damaged in various factors.

For conserving this heritage temple, Government sanctioned an amount of Rs 88.60 Lakhs to the State Archaeology Department and Rs 30.00 Lakhs to the HR&CE Department under the XII Finance Commission Grants for 2007-08. In order to identify the works to be carried out from the sanctioned fund, the temple was jointly inspected by the team of officials from the HR&CE Department, Archaeology Department, Public Works Department along with Technical Consultant for the PWD works on 3.1.2008 and the present status was observed.

MAIN GOPURAM:

Due to broken of main stone beams and stone door frame on either side of entrance, five tier Main Gopuram

constructed with stucco work over the kalkaram (Stone Masonry) has fallen by leaving certain evidences in north and southern side. Eastern and western side of the brick work with its niches and human figure are fully existing. Outer veneer of kalkaram portion is found slightly out of plumb due to growth of vegetation. However hanging brick work found without any support and rafters available at north and southern side may fall at any time. As per the archaeological principle, present stage of the Main Gopuram has been recorded by photo documentation. This is the most challenging item of work in the entire monument.

MAIN SHRINE:

A Small gopuram found at the entry of the main shrine is also affected due to weathering action and its age. Lintels supported by wooden rafters at the openings are found missing and hence it is hanging without any supports. Human figures available over the gopuram are also found without certain parts.

The Temple modeled doors were not found at the main shrine and inner Mandapam. Immediate entrance of the right side of the main shrine was closed with brick wall up to its roof and its inner and outer veneer was

found fallen completely. Stone lintel of the door frame at the entry of Mukha Mandapam, and certain roof Pavukkal around inner Prakaram are having cracks. Ceiling roof of the karuvarai was covered with brick work in flat arrangement by support with wooden rafters. These rafters are bending downwards. Most of the flooring stones were undulated. One of the Dwara Palaka (sudhai sculpture) at right side of the entry was found missing. In the inner prakaram, chimney model opening left out for the ventilation and lighting alternatively. Well is located at northern side of inner prakaram.

KALYANA MAHAL:

Roof pavukkal had fallen down from its position at the stage portion. Supporting pillars at the front mandapam were also disturbed. Weathering course was found with heavy dead load.

YAGASALAI:

Inner and outer walls were dislocated and hence certain roof pavukkal have fallen.

AMMAN SHRINE:

Wooden ceiling of the karuvarai and main door were found missing. Due to growth of vegetation, outer veneers are found dislodged.

THIRUMATHIL:

Southern side Thirumathil was completely damaged. Due to growth of vegetation, certain portions were missing in the other sides. Plastering over the brick work has peeled off completely.

PARIVARA SHRINE:

Parivara shrines in outer south prakaram are not in plumb. Similarly, base of Pali peedam and Dwajasthambam are also not in plumb.

After thorough observation, the following points were suggested during the discussion.

- Superintending Engineer, HR&CE; suggested that "the entire main gopuram to be dismantled thoroughly; after strengthening foundation by RCC works it may be re-constructed".

In reply, from an archaeological point of view it was not accepted and informed that, " by restoring the east and western side of brick work portion; north and southern side may be re-constructed with its niches but without human figures by providing new stone beams having same texture and colour".

- By showing members out of plumb in kalkaram, the Superintending Engineer stated that these portions are also disturbed.

As a conservator, it has taken stated that the problem occurred due to vegetation growth. By removing outer veneer, interned roots may be removed and then it may be set right.

Superintending Engineer disagreed and informed that "it will be decided after the re-inspection and getting opinion of Thiru. Muthiah Sthapathy", who is the Chief Sthapathy of HR & CE.

In the mean time, local people insisted for other restoration/conservation works by concentrating on the main temple.

- Superintending Engineer, HR&CE stated that, "If the works are focused for the main gopuram, no other works can be taken up under the available fund. By considering the view of local people, it was accepted to concentrate on the live temple conservation and further stated that, on getting advice of the Special Commissioner & Commissioner of HR&CE; it will be decided".

Administrative sanction was accorded for Financial Year 2007-08 and hence as suggested the following points

were submitted to the Principal Commissioner of Archaeology by the Assistant Executive Engineer (M) of this department.

During the joint inspection, works to be taken up by the HR&CE could not be finalized; HR&CE also not accepted the restoration, instead, recommended the renovation of main gopuram. This department is not empowered to carry out any major/scheme conservation works as all the works are taken up through the PWD as approved by the Government. Heritage conservation work is new for PWD also. HR&CE department is having full fledged technical wing under the head of Superintending Engineer with the guidance of Chief Sthapathy Thiru. Muthiah. For avoiding delay; decided that on getting re-validation for 2008-09; the HR&CE department may be asked to carry out the entire work by adopting the archaeological norms.

But the Principal Secretary and Commissioner of HR&CE Department has not accepted vide his letter dated 7.2.2008 and stated that the HR&CE will take up the work at the Main shrine, Ambal shrine, Madapalli and Yagasalai for Rs 30.00 Lakhs allotted to the HR&CE Department. He further informed that the estimate will be

sent for countersignature. In the mean time, Joint Commissioner of HR&CE Department, Villupuram has submitted the Xerox copy of the technical sanctioned estimate for Rs 30.0 Lakhs vide letter dated 12.11.2008. While going through the estimate it was found that the estimate has been prepared by non-adhering the archaeological norms as follows:-

- Work shown by using pure cement.
- No provisions found for the documentation.
- Provision made for the centage charges for the same dept.works.
- Introducing new works like RCC, using heavy machinery etc
- Applying Panchavarna colour.
- Non-provision of purchasing new roof pavukkal, core filling filleting re-setting the veneers etc

Based on the above remarks, the Principal Secretary and Commissioner of HR&CE Department has been addressed vide letter dated 31.12.2008 and informed that the works proposed went against the principle of the archaeological norms. Hence, if required this department officers are ready to co-ordinate by making joint inspection.

Dr. T.S. Sridhar, I.A.S; principal Secretary and Commissioner of Archaeology Department on 7.1.2009; advised to arrange joint discussions to finalize the issues with HR&CE department before proceeding joint inspection. Accordingly, joint discussion was held with HR&CE commissioner Thiru. Pichandi IAS on 20.1.2009 at the conference hall of the Archaeology Department. During the discussion , the Principal Secretary and Commissioner of HR&CE Department stated that internal meetings were conducted on 3.1.2008 and 5.1.2008 and tender has been approved as estimate finalized by the Engineering wing of HR&CE for the Thadagapuriswarar Main Sannadhi for Rs 18.00 Lakhs and Ambal Sannadhi for Rs 12.50 Lakhs. All the remaining items of works will be done by the TNSDA through PWD During the discussion, the HR&CE Department has been informed that "while sending the estimate for our department scrutiny it has been technically sanctioned by the authority of the HR&CE department and hence by mentioning the archaeological norms they have been asked to correct the estimate before execution"

As decided, the above said protected monument of stone temple was jointly inspected on 22.01.2009 by the

officials of HR&CE, PWD & Archaeology Departments for identifying the works to be carried out by TNSDA through the Public Works Department at the estimated amount of Rs 88.60 Lakhs as a remittance work under the XII Finance Commission Grants as re- validated for 2008-09.

OBSERVATION

HR&CE Department is mainly conserving the Main shrine and Ambal Shrine for the grants sanctioned to their department. Hence TNSDA asked PWD has undertaken for conservation of other portions In the complex, such as; Kalyana Mahal, Yagasalai, Thirumathil, Parivara shrines.

Based on the above observation, the following conservation works have been identified to be necessarily under taken for its preservation.

MAIN GOPURAM:

- Dangerous brick portion may be cautiously removed at eastern side including hanging part of the stone door frame in western side with precautionary measures. During this action, nothing to be happened at east & western side and it may be restored by stitching the same size of bricks by merging with existing bricks.

Entire niches may be strengthened and two coats of colour washing in single colour of biscuit/ sandal may be applied.

- Kalkaram foundation may be strengthened by using dry stone masonry.

KALYANA MAHAL:

- By removing the Weathering course, broken pavukkal and stone beams may be removed and replaced both in the mandapam and stage portion with same texture and colour after providing necessary additional supports like centering.
- Broken Bothiyal may also be replaced wherever required.
- Inner and outer veneer of the corner closure of the mandapam and outer portion of the stage may be removed and resetted merging with the existing structures.
- Undulated flooring may be removed and resetted.

THIRUMATHIL:

- Existing compound enclosures both outer and inner sides of north and west may be plastered. Other portions to be regularized from its kalkaram basement.

YAGASALAI:

- By removing the core filling with outer veneer, it may be resetted after supporting the inner portion as centering. Weathering course may be provided with proper gradient.

PRAKARAM:

- General cleaning of vegetation, pointing the stone flooring may be done.

PROVISIONS TO BE MADE:

- Two nos. of information boards having a size of 0.90x1.20m in black granite polished stone slab with emblem; the matters supplied in Tamil & English version may be engraved separately as directed by the departmental officers (writing matters will be supplied by the Archaeology Department) and laid with necessary supports using brick work in cement mortar 1:4.
- Not exceeding 2% Provision for the Technical Consultant charges may be provided in the estimate as followed during XI Finance Commission Work

GENERAL NORMS:

- As per the archaeological norms, necessary documentation by photograph at various stages are to be taken. One set of album to be handed over to this department along with the completion report.

- Before carrying out the work, entire ceiling should be supported by steel plates/ wooden planks like centering. Sand bags should also be used as cushion so that cracks will not develop. This will enable the soft transfer of load as it frees the loads on the roof. Struts to support any over-hanging of masonry should be put in place with a sand bag between the strut and such damaged/hanging member where necessary. The supports should be periodically examined.

- Outer wall stone courses are found partially hanging and fallen features often found interned in the earth on a spot as near as possible below the position it originally occupied. While felling due to its age and weathering action, there may be a chance to be broken in to pieces. These may be carefully collected and re-used for the missing portions.

- Using pure cement mortar is strictly banned. This is because cement does not bond with older material usually lime mortar as it is a heavier material. Only combination mortar 1:1:5 for the re-construction and pointing are to be used .An extract of Gallnut and Jaggery is to be mixed with combination mortar at the time of execution in equal proportion of 8 kg/Cu.m. slaked lime should be free from salt as it has a high iron content,

which is currently available at Pollachi, as observed by the Archaeological Survey of India.

- Lime mortar to be used should be well ground. To prevent blistering, the slacked lime mortar should be left for 2 to 3 weeks in a heap to stack, be reground and used. During the work, well cooked lime mortar should be mixed with cement in proper ratio for preparing combination mortar.

- By engaging experienced Sthapathy, rough sketch elevation by showing the courses of each side to be drawn manually and available individual stones, suitable stones found from the earth; may be numbered, both in drawing and as per the following procedure.

- In doing this, care should be taken not to incise /scribble the numbers or to apply to the exposed surfaces of the stones using any oil paint or other pigment or stain which will be difficult to remove again. The simplest plan is to number the stone on their right corner faces with wet colour chalk and photograph them; then course stones to be removed, sorted and arranged in an orderly way on the respective sides itself. Removal also has to be done under the direct supervision of the experienced Sthapathies, by engaging manual labour very carefully by preserving every bit of the archaeological evidence available for reuse during the reconstruction of work. While

dismantling proper care should be taken to retrieve old materials in good condition as far as possible. It maintains originality as well as saves on cost.

- After dismantling, the stones should be numbered on the back or on some other surface which will not show afterwards, in paint or other durable medium in order that stones may be replaced in their original positions.
- Before resetting and after the completion of work the stones should be thoroughly raked or washed out and loose mortar or dirt extracted. The backs and joints of the stones should also be cleaned and they should be replaced in their correct positions, re-bedded in combination mortar 1:1:5 and pointed with same mortar as a recessed pointing.

Necessary Technical Data as per the archaeological method of works as adopted by the Archaeological Survey of India is also enclosed by the TNSDA for preparing the detailed estimate by PWD.

As requested by the Assistant Executive Engineer, Public Works Department; on getting permission from the Principal Secretary and Commissioner of Archaeology, the monument of Thadagapuriswarar Koil at Madam was again jointly inspected with the Junior Engineer, PWD,

Tiruvannamalai and Assistant Engineer (M), Chennai along with the Contractor on 28.8.2009. Based on the estimate, the works to be executed were explained in detail by the Assistant Executive Engineer (M) Department of Archaeology.

It was found during the inspection that Madam Villagers got 3 phase TNEB service connection by fixing the electrical fixtures at the inner compound wall. Immediately they have been asked to shift to the original place where the single phase connection was located. They were informed, "to avoid these activities in future without getting permission of the Archaeology Department". They agreed to follow instructions and revert to the original position in completion of works. While going through the works carried out by the HR&CE under XII Finance Commission Grants it was found that, without adopting the archaeological points as already communicated, the entire main Vimanam of Swamy Sannadhi has been plastered by using pure cement. No evidence of Lime mortar/ combination mortar was found in this temple campus. Similarly re-laying of outer veneer at Amman Shrine was also carried out by the contractor of HR&CE Department using pure cement.

POONDI ARUGAR TEMPLE AT ERUMPEDU VILLAGE IN ARANI TALUK OF TIRUVANNAMALAI DISTRICT

Erumpedu Village lies about 3 kms from South of Arani – Arcot road and is connected village track taking off in western direction about one furlong. Temple is located in the Field survey no. 69/1 having with an extent of 1.65 Hectares. Based on the historical importance, Jain temple have been declared as a protected monument in G.O. Ms No 351/ Tamil Development-Culture (MA2) Department/ dated 8.10.2007 with an extent of .3300 sq.m. area which includes temple area of 1255 sq.m.

Ponnezhilnathar temple, now called as Arugar Temple was constructed with the Architectural style of Chola period. Even though it is a Jain temple it has been build with the southern cultural style. The song inscription of Sambuvarayan denotes this temple named as "Veera veera Jeenalayam". The names of Chola period Sambhuvaraya kings were also mentioned in the inscriptions found in this temple.

In south west corner Parivara temple of Brahma Devar is located. Similarly in southeast corner having stores adjacent to the madapalli. A open well in the

northern prakaram also exists. In the western side, the sub shrines of Saraswathi, Lakshmi, Chakkareswari, Padmavathy, and in northwestern side Dharmadevi are exists. A high compound wall encloses the whole complex and the frontage is beautified by the 3 -tier gopuram.

Temple faces east and main temple consists of two blocks. One block of Parsuvanathar Sannidhi contains Sanctum Sanctorum, Antharalam Mukhamandapam, Mahamandapam and Savahasa Mandapam and it is also extended further corridor Mandapam with 20 pillars. In another block of Ponnezhilnathar sannidhi contains Sanctum sanctorum & Antharalam of Main Deity and Amman Jewalamalini. A common Mandapam adjoined in two blocks, without doors.

Scattered vegetation found here and there over the structures and terrace portion. The whole shrine including Ashlar stone masonry portion has been white washed. Existing weathering course over the terrace were disturbed. Gopuram and vimanam by the uneven stone flooring found here and there. Existing electrical wirings are hanging & not properly fitted.

Kalyana Mahal available at the front yard of the temple is almost in ruined condition. Heavy growth of vegetation is the main cause for the dilapidation. Cleavages formed on the wall of eastern & southern side.

The 30 Mango trees were grown around the outer prakaram vast open area but within the protected area. One unanimous committee was formed by the local Jain people and they performed pooja from the revenue of auctioning usufructs mango, even though it is in under the control of HR &CE Department. Surrounding landholders are tress passing the open area and utilizing as dry yard at the time of cultivation.

For rectifying the repairs, Government have allotted an amount of Rs. 15.00 Lakhs under the X1I Finance Commission Grants in G.O. Ms No 159 Tourism & Culture (MA2) Department dated 8.10.2007.As per the Archaeological norms, a team of Engineers from the PWD and Archaeology Department with Curator of Arcot Museum was inspected the site on 29.9.2008 in connection with identifying the works to be carried out and archaeological Prescription as notes of inspection was issued to the PWD.

The conservation measures were recommended as under:-

- Necessary documentation by photographs on various stages (before, during and completion) to be taken as per archaeological norms. One set of album to be handed over to this department along with the completion report.

- Water tightening the main shrine's vimanam and gopuram by grouting the stone/ brick joints after raking out the dead and decayed clush lime mortar. Restoring the brick portion like Chajja, Kudus, sala and ornamental floral designs including mending and restoring the broken stucco figures if required as per the available clues using with similar type of special bricks/ tiles with lime/ combination mortar 1:1:5.

- De-plastering & re-plastering the Thirumathil wall and copings are to be made by measurable patch work to merge with existing one wherever required with combination mortar 1:1:5, 20 mm. thick after grouting holes/ cleavages if found.

- As per the ASI standard, single colour of emulsion washing with sandal or biscuit colour may be applied for the plastered Vimanam and compound wall only recommended.

- Gap found at the centre corridor Pavukkal portion to be rectified by opening the weathering course concrete and joints to be filled with 12 mm stone chips in cement mortar 1:3. In other portions, dismantling the existing weathering course plastering in lime mortar and finishing with one course of pressed tiles using combination mortar 1:1:5 and pointing with suitable colour.

Before carrying out the work, work proposed inner ceiling should be supported by steel plates/ wooden planks like centering. Sand bags should also be used as cushion so that cracks will not develop. This will enable the soft transfer of load and it frees the loads on the roof. Struts to support any over-hanging of masonry should be put in place with a sand bag between the strut and such damaged/ hanging member where necessary. The supports should be periodically examined. If fallen, due to its age and weathering action, there may be a chance to be broken in to pieces.

- Dismantling the existing brick flooring wherever found around the prakaram and inner shrines by replacing with new stone granite flooring over 100 mm thick brick jelly concrete using 40 mm brick jelly in lime mortar and set in combination mortar 1:1:5 and then pointing the

stone joints with combination mortars 1:1:5 as a recessed pointing; colour matching, curing etc.

- For safeguarding the idols as requested by the priest, a strong room is to be provided at the inner Mahamandapam with locking arrangements.
- Door with temple door model in teak wood for the sannidhi of Parsuvanathar, Ponnezhilnathar Jewalamalini and other sub shrines to be provided.
- Additional grill doors with locking arrangements at the main entries of Ponnezhilnathar shrine and at the main entrance of gopuram may be provided.
- White washed layers from the ashlars stones are to be removed by using chemicals under the supervision of this department chemist. Provisions of Rs 50,000/- may be allocated in the estimate.
- By rectifying the hanging wires at the inner premises, with limited lighting arrangements to the inner/ outer yard but within the fencing area to be made wherever required.
- Weld mesh for closing lid on the well to be provided. Rain water Harvesting systems are to be adopted for collecting rain water to the well from two to three points of its surrounding prakaram by giving proper gradient.

- Inner ceiling of Sanctum Sanctorum of the Main and Amman shrines are covered by flat tiled roofing are to be plastered with combination mortar 1:1:5.
- Later addition steps, found at the corridor, Madapalli found at the southern prakaram and the partition wall found at the rest room of the saints are also to be dismantled.
- All wooden doors are to be varnished. Similarly all iron works are to be painted with smoke grey colour.
- By removing the additional wall closing, the centre portion of the rest room of the saints may be closed with grills.
- Northern corridor mandapam flooring found with bricks/ tiles may be retained as it is and pointing may be made with combination mortar 1:1:5 as a recessed pointing.
- Branches of the Mango trees may be cutted wherever touches the temple structures/ compound wall.
- An ordinary guide boards may be laid in the main road by showing the direction of the monument.
- An information board having 0.90m x 1.20m in black polished granite stone to be laid with necessary supports. While countersigning the estimate, Tamil and English version of the matter will be supplied by this Department (TNSDA).

Removal/ Scrapping to be done under the direct supervision of the experienced Sthapathy, by engaging manual labour very carefully without changing size and shape by preserving every bit of the archaeological evidence while dismantling proper care should be taken to retrieve old materials in good condition as far as possible. It maintains originality as well as saves on cost.

Using pure cement mortar is strictly banned. This is because, cement does not bond with older materials, usually lime mortar as it a heavier materials. Only combination mortar 1:1:5 for the re-construction and pointing are to be used. An extract of Gallnut and Jaggery is to be mixed with combination mortar at the time of execution in equal proportion of 8 kg/Cu.m. Using lime should be free from salt and has a high iron content, which is currently available at Pollachi, as observed by the Archaeological Survey of India.

Lime mortar to be used should be well ground. To prevent blistering, the slacked lime mortar should be left for 2 to 3 weeks in a heap to stake, be reground and used. During the work, well cooked lime mortar to be mixed with cement in proper ratio for preparing combination mortar.

Detailed estimate prepared by the Executive Engineer, PWD, Buildings (C&M) Division

Tiruvanamalai based on the inspection notes was received by this office on 17.11.2008. While scrutinizing the estimate certain descrepancies found were corrected after inspecting the site along with PWD Engineers on 29.09.2008. After correcting the estimate it have been countersigned by the Principal Secretary & Commissioner of Archaeology Department and sent to the PWD on 23.01.2009. During the execution of work the above monument was inspected by the Principal Secretary & Commissioner of Archaeology Department along with the Engineers of the Department of Archaeology and PWD on 17.03.2009 and certain disputes were settled.

During the execution of chemical conservation works oil accretion, moss and lichens and white washed layers over the stone members and inscriptions were partly cleaned by using chemicals from the available fund under the direct supervision of the Archaeology Department's Chemist.

The above said works have been completed on 31.03.2009 by the PWD.

CONSERVATION WORKS TO THIRUMALAI NAYAKKAR MANDAPAM AT AZHAGAR KOIL IN MELUR TALUK OF MADURAI DISTRICT.

Thirumalai Nayakkar dancing hall popularly known as Thirumalai Nayakker Mandapam located within the premises of the Lord Kallazhagar Temple has been declared as a protected monument by the Government of Tamil Nadu in G.O. Ms. No.219/ Tamil Development & Culture Department/ dated 05.07.1988.

This stone Mandapam has a Narthana mandapam and Mahamandapam facing the northern side. The 30 pillared Mahamandapam has figurine of epic and mythological characters with yazhis on corbel which are the major features of Nayakker's style of architecture which enhance the beauty. Two statues are found at the right and left entrance of the Mahamandapam. The pillars on the stage have Thirumalai Nayakker and Muththiyalu Nayakker sculpted with their spouses. These sculptures are comparable to the Nayak sculptures found in Pudhumandapam at Madurai. Stone courses of inner & outer veneer have fallen from Adhisthanam to Uthiram portion and all-round of Narthanamandapam. Certain fallen stone courses were found scattered / interned at the

boundary. No kabothagam, Viyazham courses and roof pavukkal stones are found at anywhere. Boundaries are already covered by the temporary fencing in view of public safety.

The said monument was inspected by a team of Engineers from the PWD, Archaeology Department along with Technical Consultant on **22.01.2008** in connection with identification of works, to be carried out through Public Works Department as ordered by the Government under XII Finance Commission Grants as sanctioned in G.O. Rt.No.159/ Tourism & Culture (MA2) Department/ dated 8.10.2007.

While inspecting the above Mandapam, it was ascertained that the following conservation works are felt necessary to be under taken for its preservation. Accordingly an archaeological prescription as notes of inspection was issued as follows to the Public Works Department to prepare the detailed estimate as per the archaeological norms.

- Necessary documentation by photographs on various stages are to be taken as per archaeological norms. One set of album to be handed over to this department along with the completion report.

- Before carrying out the work, entire ceiling should be supported by steel plates/ wooden planks like centering. Sand bags should also be used as cushion so that cracks will not develop. This will enable the soft transfer of load as it frees the loads on the roof. Struts to support any over-hanging masonry should be put in place with a sand bag between the strut and such damaged/hanging member where necessary. The supports should be periodically examined.

- Narthanamandapam inner and outer wall stone courses were found partially hanging and fallen features may be interned in the heaped earth on a spot as near as possible below the position it originally occupied. While fallen, due to its age and weathering action, there may be a chance to be broken in to pieces. However by engaging experienced Sthapathy, rough sketch elevation by showing the courses of each side to be drawn manually and available individual stones, suitable stones found from the earth; may be numbered, both in drawing and as per the following procedure. In doing this, care should be taken not to incise /scribbling the numbers or to apply to the exposed surfaces of the stones using any oil paint or other pigment or stain which will be difficult to remove

again. The simplest plan is to number the stone on their right corner faces with wetted colour chalk and photograph them and then course stones to be removed, sorted and arranged in an orderly way on the respective sides itself. Removal also to be done under the direct supervision of the experienced Sthapathy, by engaging manual labour very carefully by preserving every bit of the archaeological evidence available for reuse during the reconstruction of work. While dismantling proper care should be taken to retrieve old materials in good condition as far as possible. It maintains originality as well as saves on cost.

- After dismantling, the stones should be numbered on the back or on some other surface which will not show afterwards in paint or other durable medium in order that stones may be replaced in their original positions.
- All facial features of pillars to be covered by straw for avoiding damages/scratches/bond adherence during the work
- Western and southern side overburden earth to be removed and the original Adhisthanam level to be exposed very carefully without damaging the structure.

- NarthanaMandapam may be completely removed from Upanam to its roof level and resetted after strengthening the foundation.
- Before resetting and after the completion of work the stones should be thoroughly raked or washed out and loose mortar or dirt extracted. From the back and joints of the stones and to be replaced in their correct positions, re-bedded in combination mortar 1:1:5 and pointed with same mortar as a recessed pointing. Pavukkal roof may also be provided by filleting the gaps with 12 mm stone chips and weathering course to be laid.
- In the weathering course, excessive layers added during the later period to be removed from Maha Mandapam and a layer of pressed tiles can be pasted on top with proper gradient.
- NarthanaMandapam stage portion should be removed and reset. The crushing edge of the base of the pillars to be mended.
- Undulated flooring found at entire Mandapam to be removed completely and resetted.
- Out of plumb pillars found at Mahamandapam may be set right while giving necessary struts to the roof stone as already specified.

- For easy access of visitors from the main gate; necessary cut-stone flooring around Mandapam to be provided.
- The sub soil water should be drained out by providing covered drain all around the Mandapam.
- Chain link fencing to be provided over the RR masonry bed supported by ISA 6565-6 mm Ms Angle post with necessary Main and Wicket gate. The western fencing boundary may be taken away to 1.50 m distance as already suggested by the Deputy Commissioner, HR&CE; Alagarkoil Devasthanam during the inspection, along with Commissioner of Archaeology on 14.08.2003.

Using pure cement mortar is strictly banned. This is because cement does not bond with older material usually lime mortar as it is a heavier material. Only combination mortar 1:1:5 for the re-construction and pointing are to be used .An extract of Gallnut and Jaggery is to be mixed with combination mortar at the time of execution in equal proportion of 8 kg/cu.m. Using lime should be free from salt and has a high iron content, which is currently available at Pollachi, as observed by the archaeological Survey of India.

Lime mortar to be used should be well ground. To prevent blistering, the slacked lime mortar should be left for 2 to 3 weeks in a heap to stake, be reground and used. During the work, well cooked lime mortar to be mixed with cement in proper ratio for preparing combination mortar at the time of execution.

Not exceeding 2% Provision for the technical consultant charges may be provided in the estimate as followed during XI Finance Commission Work.

On getting estimate from the Public works Department, it was scrutinized by the conservation section and found that, due to inadequacy of amount Mahamandapam was left over from removal and resetting. On getting estimate committee's opinion, it has been countersigned by Dr.T.S.Sridhar, IAS., the Principal Secretary and Commissioner of Archaeology Department. During the execution of works, it has been inspected several times by the various officers of the Department of Archaeology along with PWD Engineers and necessary guide lines were issued for removal and resetting. During the removal of inner veneer, the interned inscription was brought to the light which indicates that "Nagappa Chettiyar and his son Ellappa Chettiyar had donated for

the Mandapam construction". The following works were completed to conserve the stage portion of the Mandapam.

- After numbering the inner and outer veneer Narthana Mandapam has been dismantled up to its Upanam portion.
- All facial features of pillars at Stage portion was covered by straw for avoiding damages/scratches/bond adherence during the work and removed cautiously.
- Western and southern side overburden earth removed and the original Adhisthanam level was exposed very carefully without damaging the structure.
- After strengthening, the foundation up to its roof level was resetted.
- Without ornamental works, new stones of Kabhothagam and Eluthagam have been provided in the missing places.
- Pavukkal (roof slab) has been provided by filleting the gaps with 12 mm stone chips.
- NarthanaMandapam flooring was provided.
- Out of plumb pillars found at Mahamandapam was set righted with giving necessary struts to the roof stone as already specified.

- To drain sub soil water, covered drain all around the Mandapam was provided.

Due to inadequacy of fund the NarthanaMandapam only has been setrighted by strengthening foundation, Even though the Mahamandapam stands in grand manner, for giving more life it may also be restored by strengthening foundation on getting fund in future.

- Without ornamental works, new stones of Kabhothagam and Eluthagam were provided in the missing places with care. Based on above archaeological prescription the works commenced and completed satisfactorily.

Thus the extensive Construction of King Thirumalai Nayakkar Mandapam was partly restored for posterity. It will attract both tourists and locals. The monument was kept out of bounds for public, being a safety hazard. Now after restoration, the hall is fit for public visit.

Tips for the executors who are engaged in Ancient Monuments/Heritage buildings conservation works.

Our country can boast of a rich cultural heritage in the form of monumental edifices like palaces, temple, forts, strupas, monasteries, rock cut cares decorated with world-renowned murals, besides Sculptures, bronzes, terracottas and wooden objects etc. It is important to bear in mind equal importance to the repair, restoration and preservation of the existing remains of the heritage to be paid by the executors to arrest the agency of deterioration.

Any agency may execute the work according to archaeological norms. for the respective heritage structures. This meant Archaeological prescriptions as notes of inspection had to be given by a trained archaeologist/ Archaeological conservation Engineers who are confident enough to take responsibility. The report should indicate precisely aspects of conservation in form of Archaeological prescription notes.

- The items of works of unavoidable nature to be carried out immediately without delay.

- The items of works requiring attention to prevent further deterioration of the existing structure from rain/storm water, insects or fungus.

- The items of works to be taken up on low priority basis.

- The items of works to be taken up after keeping the structure under observation for sometime.

- Structural analysis should be brought out giving the specification of items of works, condition of roofs, floors, stair cases, domes, arches, masonry walls, internal fitting, drainage system, bulged portion and cracks.

Special Norms for tenders are fixed as stated below:

- Tenderer should have past experience in the conservation of ancient monuments.

- The work should be carried out as per archaeological principles.

- Highly skilled labour, traditional masons skilled in iconography (sthapathy)/ stucco work (sudai) masons and special materials should be employed.

- The aesthetic and archaeological features of the monument should not be affected. This is to enable the identification of the historicity of the monument.

- No blind replication to be made without any documentary evidence.

- Confusion may be caused by the indiscriminate re-erection of image in wrong place.

- In no case mythological or other scene be re-carved.

- Restoration of carved stones, carved moulds on plaster mouldings, should be undertaken only if artisans are able to attain the excellence of the old.

- Use of heavy machinery like bull dozers, dumpers etc has to be avoided as there is likelihood of causing damage to the structure, which was constructed centuries earlier.

- While dismantling proper care should be taken to retrieve old materials in good condition as far as possible. This maintains originality as well as saves on cost.

- Whenever strengthening / removing / chipping / dismantling are under taken necessary props / strutting should be given wherever required to transfer the load. Sand bags should be used as cushion so that cracks will not develop. This will enable the soft transfer of load. This will free the load on the roof.

- Whenever scaffolding is required to be erected at a monument, it should be ensured that it does not in any way cause injury or scratches on walls or floors. It might be necessary to provide gunny bags or other suitable soft materials on the floor/ walls.

- While attending the restoration part of a structure the original pattern, design and architecture has to be adhered by using original material, as far as possible.

- Over hanging masonry should be properly strutted up and loose bulged masonry may also be supported by wooden planks to avoid collapse.

- All restored stone members should match with original masonry in texture and colour.

- The decayed or damaged vaulted roof and arches have to be inspected frequently and to be centered and strutted up adequately.

- If any termites are found, an extract of vilva (angle marmelos (l) correa) fruit may be mixed with mortar as curative.

Common Traditional Techniques to be followed in Monuments (or) Heritage Building

- To complete documentation of the edifice as evidence before work is commenced by photography (or) manual methods.

- No religious edifice should be demolished or injured in the execution of work.

- During the execution of works, the work will be inspected by the Archaeological Conservation Engineer and instructions issued by him from time to time have to be followed strictly.

- Lime mortar to be used should be well ground.

- Sand used for mortar should be coarse-grained, perfectly clean, sharp, and preferably of yellow and variegated colour. It should, If possible, be obtained from the local pits or rivers. Sea-sand contains salt, which will cause efflorescence when the mortar is set. It should not be used in monuments.

- While using combination mortar, sieve mesh of size Number 12 to get the required fineness of sand may be used for sieving sand. Extract of galnut and jaggery in 10 kg. Per cu.m in equal proposition is also to be added at the time of execution of work.

- To prevent blistering, the slaked lime stone should be left for 2 to 3 weeks in a heap to stake, be reground and used. The lime mortar should be well cooked so that the plaster is strong.

- Simultaneously, juice of cactus is also to be added in required consistency as an ingredient for anti saline action.

- Using pure cement mortar is strictly banned. This is because cement does not bond with the older material, usually lime mortar, as it is a heavier material The plaster using only cement will fall down after a few years. In case it is used on walls to bond bricks or granite stones, cracks may develop soon after the work is done.

- Where re-plastering is necessary, it should be done either with the original lime mortar or where additional strength is required with combination mortar. In the latter case, the proportion should be 1:1:5 using lime free from salt and has a high iron content, which is currently available at Pollachi, as observed by the Archaeological Survey of India.

- At the time of de-plastering, strengthening foundation; if any new findings are noticed they should be left as it is till the clearance of the Archaeology Department is obtained.

- Removing worn out bricks should be done carefully, using proper power tools without giving shock to the structures, stage by stage.

- Monument constructed, with bricks, the sizes of the original bricks should be measured. Bricks of the same size and material only should be procured and used.

- Brick masonry has to be executed with original bond and the mortar joints have to be recessed from the face.

- Replica/ reconstruction of the edifice should be done as per the original plan and orientation of the structure.

  The older materials were lighter and had with stood the ravager of time for more than thousand years in most cases. The result would be crumbling of the entire edifice because they loaded an old man with a huge load to carry.

- All wooden members like joints/beams /windows, doors etc. should be made in Burma Malabar teak wood.

- The decayed wooden beams should be removed slowly and carefully. Teak wood beam in arch-barred vault roof are to be replaced by providing wooden beams in alternate bays to avoid collapse.

- . Walls proposed to be replastered should be wetted after deplastering and allow to dry. for a

period of 30 to 45 days and then only replastered. This will remove salinity

- Narrow cracks to be filled with lime or combination mortar slurry by grouting.

- Wider cracks have to be stitched suitably by using same material.

- To avoid damage to wooden beam and ensure long life, the internal rafters may be covered by lotus leaf and tied very closely with fine coir rope for getting strict adherence of mortar.

- The roof cracks to be sealed by stitching by providing suitable adjustable props with sand cushion bags packed tightly with the roof. One or two bricks from the roofs cracks should be carefully removed. The same quality and size of bricks are to be used. However, copper plates can be used or more filleting/ grouting can be done according to seriousness of the gap. The old bricks should be removed layer by layer wherever found necessary.

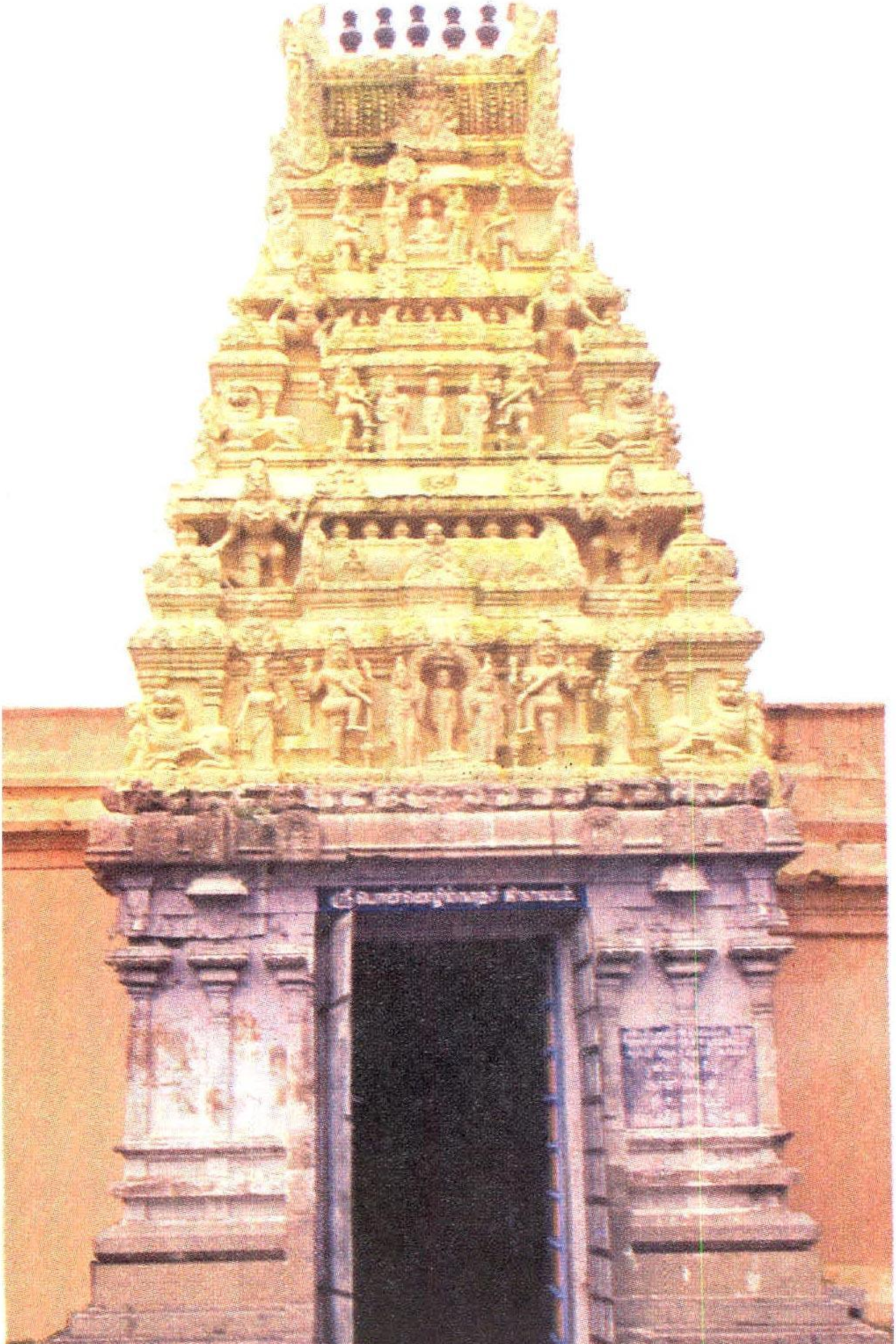
- The terrace water should be drained by traditional spouts as per exists.

PHOTOS

POONDI ARUGARKOIL, ERUMPEDU

Before Conservation

POONDI ARUGARKOIL, ERUMPEDU



After Conservation

SIVAN KOIL AYYAPATTI

Before Conservation

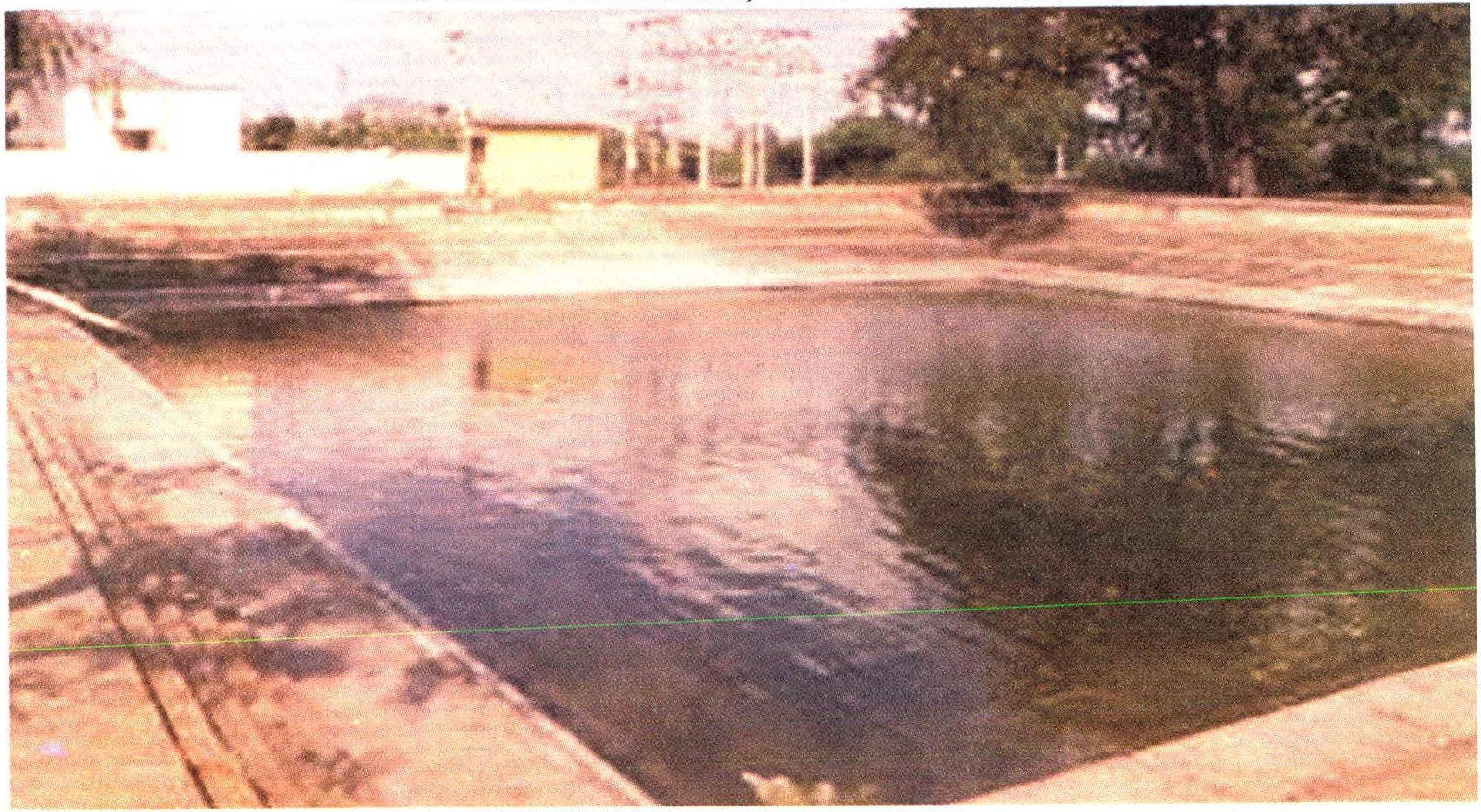
SIVAN KOIL AYYAPATTI

After Conservation

CHINAYANKULAM, CHINNAYAMPET

Before Conservation

CHINAYANKULAM, CHINNAYAMPET



After Conservation

RAJA GOPURAM, MADAM

Before Conservation

RAJA GOPURAM, MADAM

After Conservation

KALYANA MANDAPAM, MADAM

Before Conservation

KALYANA MANDAPAM, MADAM

After Conservation

THIRUMALAI NAYAKKAR MANDAPAM, ALAGAR KOIL

Before Conservation

After Conservation

VALEESWARAR KOIL, THAKKOLAM

Before Conservation

VALEESWARAR KOIL, THAKKOLAM

After Conservation

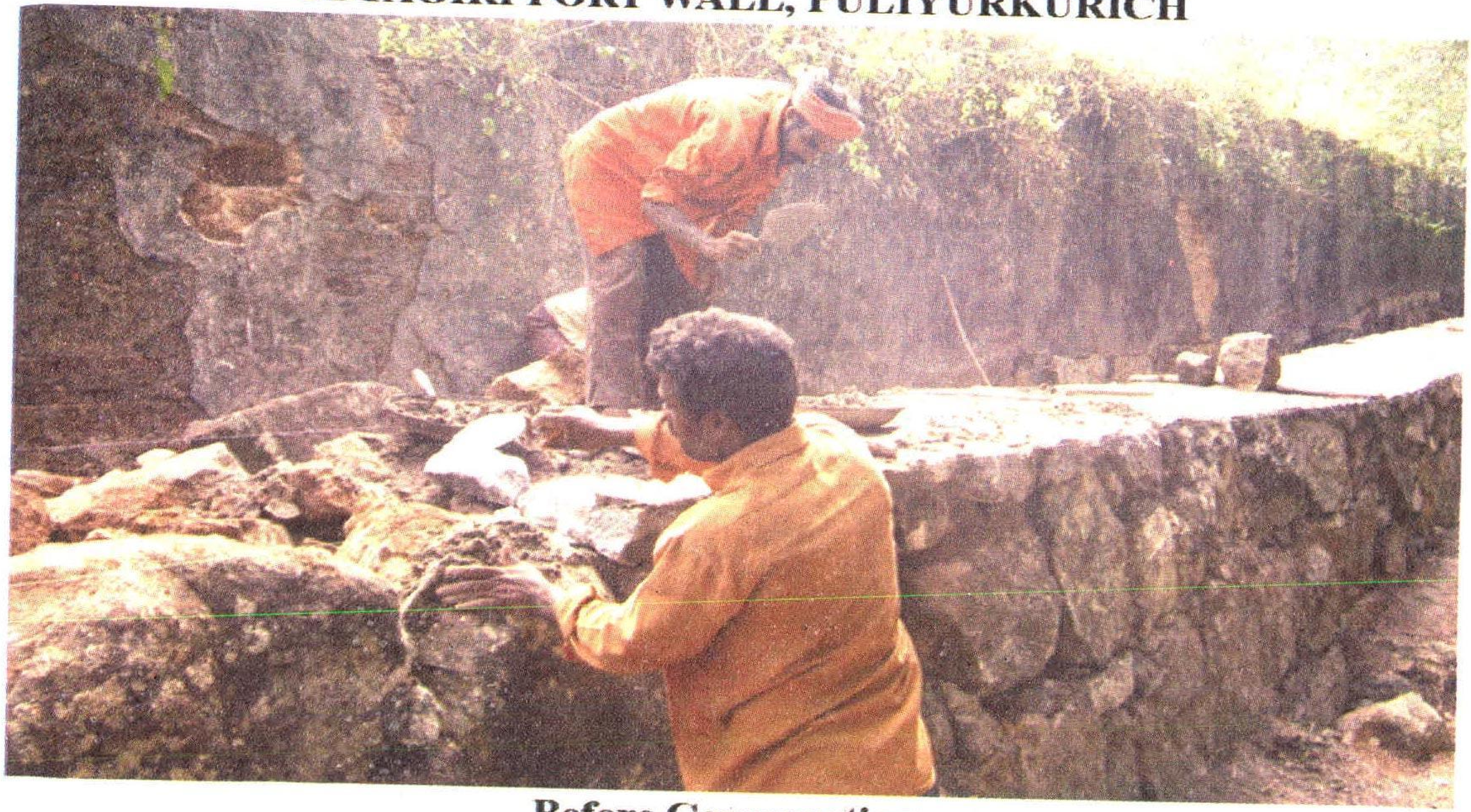
DLANNOYS TOMB, UDYAGIRI FORT COMPLEX

Before Conservation

DLANNOYS TOMB, UDYAGIRI FORT COMPLEX

After Conservation

UDYAGIRI FORT WALL, PULIYURKURICH



Before Conservation

UDYAGIRI FORT WALL, PULIYURKURICH

Before Conservation

SIVAN KOIL ULAGAPURAM

Before Conservation

SIVAN KOIL ULAGAPURAM

After Conservation